

Diversity based on T cell composition

LZ Liangtao Zheng SQ Shishang Qin XH Xueda Hu ZZ Zemin Zhang

Updated date: Aug 15, 2022

An abbreviated version of this protocol was published in Science in Dec 2021

Pan-cancer single-cell landscape of tumor-infiltrating T cells

DOI: 10.1126/science.abe6474

Detailed protocol

To compare the T cell composition among blood, normal tissues, and tumors, the frequency of CD4⁺ meta-clusters and CD8⁺ meta-clusters were calculated separately. Then a Shannon equitability index (normalized Shannon diversity index) (E_H) was calculated as:

$$E_H = - \sum_i^M p_i \log_2 p_i / \log_2 M$$

Where p_i was the frequency of meta-cluster i , and M was the number of meta-clusters. The Shannon equitability index ranged from 0 to 1. While the high index indicated similar frequencies across different meta-clusters, the low index indicated certain meta-clusters dominated in the meta-cluster frequency distribution.

How to cite: (Readers should cite both the Bio-protocol preprint and the original research article where this protocol was used)

1. Zheng, L. , Qin, S. , Hu, X. and Zhang, Z. (2022). Diversity based on T cell composition. Bio-protocol Preprint. bio-protocol.org/prep1863.
2. Zheng, L., Qin, S., Si, W., Wang, A., Xing, B., Gao, R., Ren, X., Wang, L., Wu, X., Zhang, J., Wu, N., Zhang, N., Zheng, H., Ouyang, H., Chen, K., Bu, Z., Hu, X., Ji, J. and Zhang, Z.(2021). Pan-cancer single-cell landscape of tumor-infiltrating T cells. Science 374(6574). DOI: [10.1126/science.abe6474](https://doi.org/10.1126/science.abe6474)

Copyright: Content may be subjected to copyright.